

**ABSTRACT OF THE DISCLOSURE**

A method of network address port translation and look-up. In a network address port translation (NAPT) gateway connecting a virtual internal network and an external network, the virtual internal network includes at least a server, and the external network includes at least a host. When an incoming data packet of a data stream is received from the external network, not only are the destination internet protocol (IP) address and port therein translated, but also the source IP address or source port is replaced by an index of a translation data in a NAPT translation table corresponding to the data packet. When an outgoing data packet of the same data stream is received from the internal network, the index drawn from the destination IP address or destination port can be directly mapped to the translation data.